

***Detailed Action***

1. This Office Action is submitted in response to the RCE/Amendment filed 12-2-2008, wherein claim 5 was amended. Claims 1, 5, and 6 are now pending.

2. The examiner agrees with the arguments filed 3-7-2008 that the prior art cited in the previous Office Action fails to disclose the claimed invention and the rejections therein are hereby withdrawn.

***Examiners Amendment***

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Shaun Snader on 2-20-2009. The changes made below have underlined text indicating insertions, and strike through and/or double-bracketed text indicating deletions.

The Claims are amended as follows;

-- 1. (Previously Presented) A detection system comprising:

(a) a detection cell having an entry gate; and

(b) a drive unit for controlling switching of said gate,

wherein said drive unit is arranged to control switching of said gate in both a pseudo-random binary sequence and in a bit-flipped pseudo-random binary sequence, and

wherein said drive unit comprises a computer processor and a computer readable medium having instructions to produce analyzing matrices corresponding to said pseudo-random binary sequence and to said bit-flipped sequence, and data sets corresponding to outputs obtained from the system for said pseudo-random binary sequence and for said bit-flipped pseudo-random binary sequence, and wherein said matrices and data sets are combined by matrix algebra to produce a system output with reduced noise. --

***Allowable Subject Matter***

4. Claims 1, 5, and 6 are allowed

***Examiner's statement of reasons for allowance***

The following is an examiner's statement of reasons for allowance:

5. The prior art discloses the claimed detection system that uses gated binary sequences including pseudo-random and bit-flipped pseudo-random sequences, where the system forms a matrix from the binary sequences then performs matrix algebra operations using the matrix and the detector output to obtain a mass spectrum. (See for example, USPN 6,300,626 to Brock and USPN 6,263,087 to Miller). However, the prior art fails to show performing matrix algebra operations with two matrices, one comprising pseudo-random sequences and another matrix comprising bit-flipped pseudo-random sequences, as recited in claims 1 and 6.

6. Claim 1 and 6 are allowed because the prior art fails to show a system that forms two matrices, one comprising pseudo-random sequences and another comprising bit-flipped pseudo-random sequences the binary sequences and combining the matrices using matrix algebra to produce an output having reduced noise.

7. Claim 5 is allowed by virtue of its dependency upon allowed claim 1.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications should be directed to Phillip Johnston whose telephone number is (571) 272-2475. The examiner can normally be reached on Monday-Friday from 7:00 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiners supervisor Robert Kim can be reached at (571) 272-2293. The fax phone number for the organization where the application or proceeding is assigned is 571 273 8300.

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PJ  
February 23, 2009  
/David A Vanore/

Primary Examiner, Art Unit 2881